

### **Amendments to the Claims**

Kindly amend claims 1, 2, 5, 6, 9 & 10 as set forth below. All pending claims are reproduced below, with changes in the amended claims shown by underlining (for added matter) and strikethrough/double brackets (for deleted matter).

1. (Currently Amended) A processing method for a distributed computing environment having multiple networks of computing nodes employing multicast messaging, each network having at least one computing node, at least one computing node of said multiple networks of computing nodes functioning as a multicast routing node, said method comprising:

automatically responding to a failure [[at]] of a computing node  
functioning as multicast routing node of said at least one computing node  
functioning as said multicast routing node to reassign said multicast routing function; and

wherein said automatically responding comprises dynamically reconfiguring said distributed computing environment to replace each failed multicast routing node of said at least one multicast routing node with another computing node of said multiple networks of computing nodes to maintain multicast message reachability to all functional computing nodes of said distributed computing environment.

2. (Currently Amended) The processing method of claim 1, wherein said at least one computing node functioning as said multicast routing node comprises multiple computing nodes functioning as multiple multicast routing nodes and said distributed computing environment comprises a plurality of groups of computing nodes, each group comprising one network of said multiple networks, and wherein each computing node functioning as multicast routing node comprises a group leader for multicast routing of a respective group of computing nodes, each group leader being coupled via a virtual interface to at least one other group leader of a group of computing nodes of the distributed computing environment, and wherein said failure of the computing node comprises failure of a group leader node, and automatically responding to said failure comprises automatically selecting a new group leader from functioning computing nodes of the respective group of computing nodes having said group leader failure.

3. (Original) The processing method of claim 2, wherein said dynamically reconfiguring comprises establishing a virtual interface from said new group leader to at least one other group leader within the distributed computing environment, said virtual interface comprising a multicast messaging tunnel between said group leaders, said multicast messaging tunnel being established using an mrouted daemon.

4. (Original) The processing method of claim 3, wherein said dynamically reconfiguring comprises ensuring only one computing node of each group of computing nodes is a group leader functioning as said multicast routing node for said group of computing nodes, thereby avoiding redundancy in routing of multicast messages between any two networks of computing nodes.

5. (Currently Amended) A processing system for a distributed computing environment, said processing system comprising:

multiple networks of computing nodes within the distributed computing environment, said multiple networks of computing nodes employing multicast messaging, with each network having at least one computing node, and at least one computing node of the multiple networks of computing nodes functioning as a multicast routing node;

means for automatically responding to a failure [[at]] of a computing node functioning as multicast routing node of said at least one computing node functioning as said multicast routing node to reassign said multicast routing function, wherein said means for automatically responding comprises means for dynamically reconfiguring said distributed computing environment to replace each failed multicast routing node of said at least one multicast routing node within another computing node of said multiple networks of computing nodes to maintain reachability of multicast messages to all functional computing nodes of said distributed computing environment.

6. (Currently Amended) The system of claim 5, wherein said at least one computing node functioning as said multicast routing node comprises multiple computing nodes functioning as multiple multicast routing nodes and said distributed computing environment comprises a plurality of groups of computing nodes, each group comprising one network of said multiple networks, and wherein each computing node functioning as multicast routing node comprises a group leader for multicast routing of a respective group of computing nodes, each group leader being coupled via a virtual interface to at least one other group leader of a group of computing nodes of the distributed computing environment, and wherein said failure of the computing node comprises failure of a group leader node, and said means for automatically responding to said failure comprises means for automatically selecting a new group leader from functioning computing nodes of the respective group of computing nodes ~~when having said failure comprises a group leader failure~~.

7. (Original) The system of claim 6, wherein said means for dynamically reconfiguring comprises means for establishing a virtual interface from said new group leader to at least one other group leader within the distributed computing environment, said virtual interface comprising a multicast messaging tunnel between said group leaders, said multicast messaging tunnel being established using an mrouted daemon.

8. (Original) The system of claim 7, wherein said means for dynamically reconfiguring comprises means for ensuring only one computing node of each group of computing nodes is a group leader functioning as said multicast routing node for said group of computing nodes, thereby avoiding redundancy in routing of multicast messages between any two networks of computing nodes.

9. (Currently Amended) A processing system for a distributed computing environment comprising:

multiple networks of computing nodes within the distributed computing environment, said multiple networks of computing nodes employing multicast messaging, with each network having at least one computing node, and at least one computing node of the multiple networks of computing nodes functioning as a multicast routing node;

a processor associated with the distributed computing environment; and  
code executable by said processor associated with said distributed  
computing environment, said code causing said processor to effect:

automatically responding to a failure [[at]] of a computing node  
functioning as multicast routing node of said at least one computing node  
functioning as said multicast routing node to reassign said multicast  
routing function; and

wherein said automatically responding comprises dynamically  
reconfiguring said distributed computing environment to replace each  
failed multicast routing node of said at least one multicast routing node  
within another computing node of said multiple networks of computing  
nodes to maintain reachability of multicast messages to all functional  
computing nodes of said distributed computing environment.

10. (Currently Amended) An article of manufacture comprising:

a computer program product comprising a computer usable medium  
having computer readable program code means therein for maintaining multicast  
message reachability within a distributed computing environment having multiple  
networks of computing nodes employing multicast messaging, each network  
having at least one computing node, and at least one computing node of the  
multiple networks of computing nodes functioning as a multicast routing node,  
said computer readable program code means in said computer program product  
comprising:

(i) computer readable program code means for causing a  
computer to effect automatically responding to a failure [[at]] of a  
computing node functioning as multicast routing node of said at least one  
computing node functioning as said multicast routing node to reassign said  
multicast routing function; and

(ii) wherein said computer readable program code means for causing a computer to effect automatically responding comprises computer readable program code means for causing a computer to effect dynamically reconfiguring said distributed computing environment to replace each failed multicast routing node of said at least one multicast routing node with another computing node of said multiple networks of computing nodes to maintain multicast message reachability to all functional computing nodes of said distributed computing environment.

11. (Original) The article of manufacture of claim 10, wherein said computer readable program code means for causing a computer to effect dynamically reconfiguring comprises computer readable program code means for causing a computer to effect ensuring only one computing node of each group of computing nodes functions as a multicast routing node for said group of computing nodes, thereby avoiding redundancy in routing of multicast messages between any two networks of computing nodes.

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